

**REMARKS**

Claims 37-49 remain pending in this application. Claims 37 and 44 have been amended to more explicitly set forth the novel structure of the claimed invention. Further reconsideration of this application is requested.

**35 U.S.C. § 103 Rejection**

The rejection of claims 37-49 as being obvious over the Admitted Prior Art of Figs. 1-3 (APA) in view of any of Alvord, Fujiwara et al., Schlyer et al., Amini and Satyamurthy previously of record, is respectfully traversed. No combination of prior art references could result in the claimed structure as none of the prior art references teaches each and every element of the claimed invention.

According to the Office Guidelines re Obviousness, the prior art need not teach all limitations of the claimed invention, but the Examiner must explain why those limitations that are not taught are obvious. An Examiner's rejection cannot be based on conclusory statements, rather they must be based on an articulated reason with some rationale. Such rationales for supporting the legal conclusion of obviousness, as described in the Guidelines are:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) "Obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention, i.e. the TSM test.

In this case, none of the above factors exists. There has been no showing or explanation as to how the multiple limitations of the claims that are not taught by the applied prior art are allegedly obvious.

As shown in Fig. 5 of the application, a first cooling fluid inlet 406 is located at one end of the target assembly 10, a first cooling fluid outlet 404 is located at another end of the target assembly, and a first cooling channel 502, 504, 506, 508 runs from the cooling fluid inlet 406 to a first location adjacent to the rear wall 512, from the first location to a second location between the rear wall 512 and top wall 514, from the second location to a third location adjacent to the top wall 514, and from the third location to the cooling fluid outlet. Independent claims 37 and 44 have been amended to more explicitly set forth the cooling system structure.

None of the applied prior art references discloses or suggests such a structure, and consequently no combination of the prior art references could result in the claimed invention. The APA discloses the use of a plurality of external circumferential cooling channels 304 on the outside surface of the target body and does not disclose Applicant's invention, as previously explained and as so found by the Board of Patent Appeals in its decision dated November 25, 2008.

Alvord discloses a porous carbon target 12 into which fluid has been introduced via a sample inlet 20, wherein the carbon target is bombarded by a particle beam 30. Alvord discloses that cooling water 24 is circulated through the target body 14. As shown in Fig. 2, the cooling water 24 is provided in a chamber that is remote from the porous target 12. No cooling water inlet, outlet or channels are disclosed in Alvord.

Fujiwara discloses a positron emitter-generating unit 10 having a target container 17 formed by an intermediate block 13, a first metal foil 15 and a second metal foil 16. A "concave part" or chamber 18 on the other side of metal foil 16 receives cooling water from water feed pipes 19a and 19b. No cooling channel between a cooling fluid inlet and cooling fluid outlet is disclosed by Fujiwara. No cooling channel running adjacent to a rear wall and a top wall of a target chamber is disclosed by Fujiwara.

Schlyer discloses in Fig. 2 a target 14 that retains a sample 12 to be irradiated with a beam 20. Cooling fins 28 are provided in a cooling chamber remote from the target 12, into which coolant 40a flows and circulates over the cooling fins 28. No cooling channel is disclosed by Schlyer.

Amini discloses in Fig. 1 a target body 11 having a target chamber 10. Housing channels 12 for holding heating cartridges are provided adjacent to the target chamber 10. A cooling flange 31 is secured to an end of the target body 11 facing a particle accelerator 60. The cooling flange 31 includes cooling pathways 32. The cooling pathways 32 in cooling flange 31 do not run adjacent to walls of the target chamber 10. Amini further fails to disclose any cooling fluid inlet or cooling fluid outlet coupled to cooling flange 31 or to cooling pathways 32.

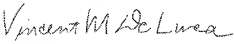
Satyamurthy discloses in Fig. 1 a cooling water chamber directly behind a target chamber, with a cooling water inlet tube entering one side of the cooling water chamber and being surrounded by a concentric cooling water outlet tube. There are no cooling fluid channel conduits formed within a target body or running along top and rear walls of a target chamber as required by the pending claims of this application. Instead, there is one large cooling water chamber formed adjacent to the target chamber. There are no cooling fluid inlets or outlets at respective ends of the target body. Instead the inlet and outlet are concentrically located and formed at one end of the cooling water chamber, not the target body.

As such, even if the applicable disclosures of Alvord, Fujiwara, Schlyer, Amini or Satyamurthy were to be applied to the APA, the invention as set forth in claims 37 and 44 would not be achieved. In particular, the parallel dual cooling channel system as set forth in claim 44 would not be achieved even if it would have been obvious to one of ordinary skill in the art to have modified the target assembly of the APA to incorporate an internal cooling channel structure (which would not have been obvious from any of the applied prior art references as explained above).

**Conclusion**

In view of the foregoing, further and favorable reconsideration of this application, withdrawal of all outstanding grounds of rejection, and the issuance of a Notice of Allowance are earnestly solicited.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Deposit Account No. 14-1437.

RESPECTFULLY SUBMITTED,					
NAME AND REG. NUMBER	Vincent M. DeLuca Attorney for Applicants Registration No. 32,408				
SIGNATURE			DATE	26 April 2010	
Address	Novak, Druce, DeLuca + Quigg LLP 1300 I Street, N.W., Suite 400 East Tower				
City	Washington	State	D.C.	Zip Code	20005
Country	U.S.A.	Telephone	202-659-0100	Fax	202-659-0105